10 **If** $f(x) = 3x - 2$ **and** $g(x) = x^2 - 5$, **what is** $g(f(2))$?

A. 11
B. 3
C. −4
D. −5

$3(2) - 2$
$6 - 2$
$4$

$g \circ f(2)$
$4^2 - 5$
$16 - 5 = 11$

**Employees of a local car dealership receive a choice of two incentives when buying a car. They can have a discount of 6% or receive $2,000 off the price of the car. All employees must then pay 6% sales tax. The following functions model the price of the car after each incentive as well as the price of the car after sales taxes.**

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|---|---|
| **6% discount** | $f(x) = 0.94x$ |
| **$2,000 off** | $g(x) = x - 2000$ |
| **Sales tax** | $h(x) = 1.06x$ |

**Using the function composition of the sales tax function and one of the incentives, which composition will produce the lowest price on a car priced at $30,000?**

$f(h(x))$
$h(f(x))$
$g(h(x))$
$h(g(x))$

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A 30,000(1.06) = 14800 6% = .06

C 30000(1.06) = 14800

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C. $g(h(x))$
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A. $30000(1.06) = 31,800$

$31800(.94) = 29,892$

inverse

B $30,000(.94) = 28,200$

$28,200(1.06) = 29,892$

C. $30000(1.06) - 2000 = 29,800$

D $(30000 - 2000)1.06 = 29,680$

$f(x) = x^2 + 1$

$g(x) = 2x + 3$

$h(x) = x + 5$

$h(f(2))$ or $h \circ f(2)$

$2^2 + 1 = 5$

$5 + 5 = 10$

$h(f(x)) = (x^2 + 1) + 5$

$= x^2 + 1 + 5$

$= x^2 + 6$

$f(h(x))$

$(x+5)^2 + 1$

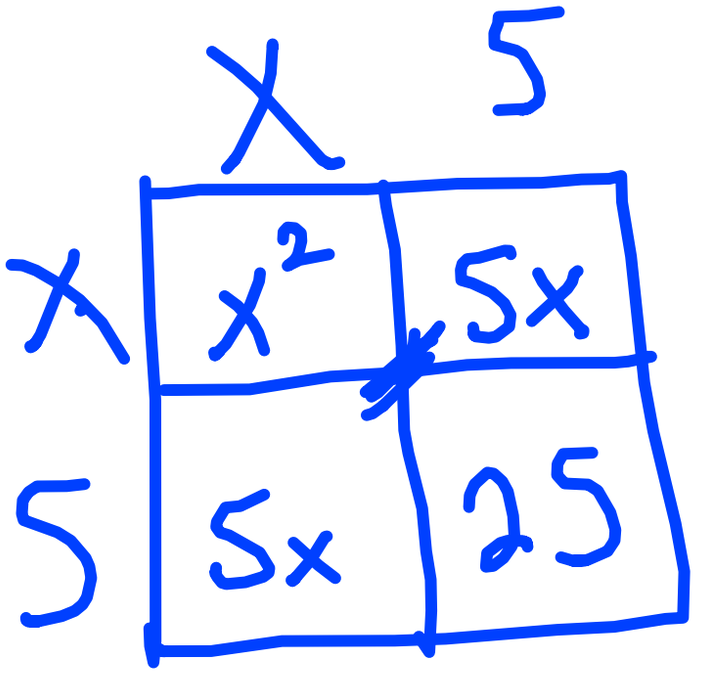
$(x+5)(x+5) + 1$

$x^2 + 10x + 25 + 1$

$x^2 + 10x + 26$

$(8x)^2 = 64x^2$

$(x+5)(x+5)$




$x^2+10x+25$